

What we know

Properties of Quadratics

- Direction of opening
- y-intercept
- Shape of Graph - Parabola

What we will be learning

3.2 Properties of Graphs of Quadratic Relations

Work to help you remember

Do: Pg. 145 # 1, 2, 3, 4, 5, 6, 7adf, 9ac, 10, 11, 16

With Technology: Pg. 147 # 8, 12, 13, 14, 15

Feb 22-11:43 AM

Recap from Yesterday - 3.1 Intro to Parabolas

$y = ax^2 + bx + c$ is a quadratic relation, in **standard form**.

The graph of a quadratic relation is a **parabola**.

For a quadratic relation, the **second differences** are **constant** but not zero.

When the value of a is **positive** the parabola opens **up**. Think smile

When the value of a is **negative** the parabola opens **down**. Think frown.

If the parabola opens **up** the **second differences** are **positive**.

If the parabola opens **down** the **second differences** are **negative**.

The c value is the **y-intercept**.

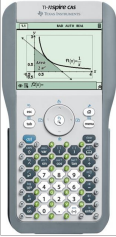
The degree of a relation is the value of the highest exponent.

Linear relations are **degree 1** **quadratic** relations are **degree 2**.

Oct 24-9:47 PM

Standard Form: $y = ax^2 + bx + c$

Exploring Using Ti-Nspire



- * Turn On Calculator
- * Home 6 (New Document)
- * Don't save previous document (Use Nav pad to move to "no" and then "click")
- * Choose 2: Graphs and Geometry

Mar 22-3:12 PM

1 ENTER $y = x^2$ base parabola

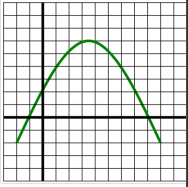
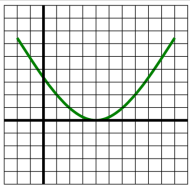
2 ENTER $y = x^2 + 21$

Do you SEE the Graph????

Mar 28-8:43 PM

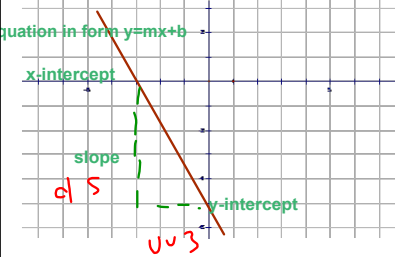
(3.2) **Properties of Graphs of Quadratic Relations**

Terminology	Definition	Graph A	Graph B
Vertex	The ordered pair that represents the maximum or minimum point on the graph. It is the point where the graph changes direction.		
Minimum/maximum value	The highest or lowest point on the graph. It is represented by the y-value of the vertex.		
Axis of symmetry	The vertical line that separates the parabola into two equal parts.		
y-intercept	The y-value where the parabola crosses the y-axis.		
x-intercepts or Zeros	The x-value(s) where the parabola crosses the x-axis.		



Mar 27-11:04 AM

The Linear Function:

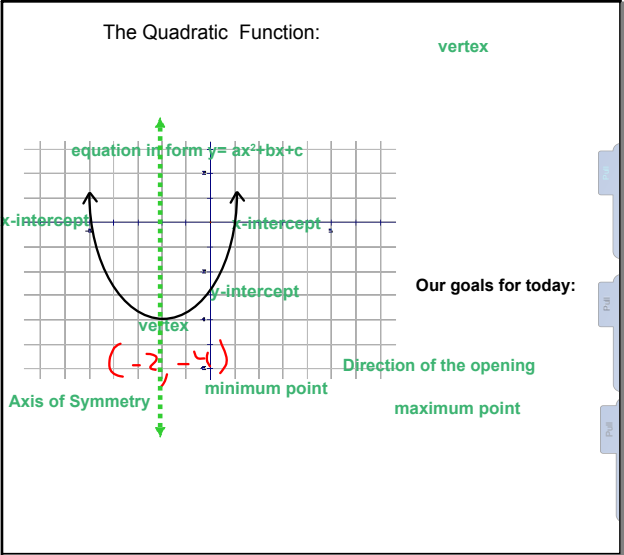


Describe what would happen to the line if the "b" value changes?

Describe what would happen to the line if the "m" value changes?

$\frac{\text{rise}}{\text{run}} = \frac{-5}{3}$

Mar 22-2:04 PM

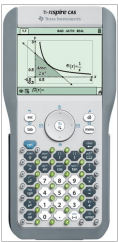


Mar 22-2:04 PM

Standard Form: $y = ax^2 + bx + c$

Exploring Using Ti-Nspire

- * Turn On Calculator
- * Home 6 (New Document)
- * Don't save previous document (Use Nav pad to move to "no" and then "click")
- * Choose 2: Graphs and Geometry



Mar 22-3:12 PM

Coefficients of $ax^2 + bx + c$	Effect of changing???
a	
b	
c	

Mar 22-2:17 PM

Coefficients of $ax^2 + bx + c$	Effect of changing???
a	shape (narrower/wider)
b	shifted L/R
c	shifted u / D

Mar 28-8:49 PM